

REMARKS

A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

Claims 1-22 and 39-40 are now pending in this application. No claims are amended, added or cancelled. No new matter was added.

I. §103(a) Rejection – Laskaris et al. in view of Kotani et al.

Claims 1, 7-11, 14, 19-21 and 39 are rejected under §103(a) over Laskaris et al. (US 6,198,371) in view of Kotani et al. (US 5,861,574). This rejection is respectfully traversed.

A. Laskaris Teaches Away From Combination

As correctly noted by the Office Action, Laskaris does not teach a vibration isolation system. In fact, Laskaris teaches to rigidly mount the magnet assembly 10 to the floor 42 by using a rigid support skirt 20 (see Figures 1 and 2 and col. 4, lines 31-46 of Laskaris). The skirt 20 contains a rigid cylindrical wall 50 that is bolted to the floor 42. The stated advantage from using the skirt of Laskaris is that it “stiffens the support of the magnet” to reduce vibration. (See column 2, lines 55-65 of Laskaris). Thus, Laskaris actually teaches away from using a vibration isolation system with a MRI magnet assembly because Laskaris solves the vibration problem by making the MRI magnet assembly mount to the floor more rigid than before, rather than less rigid.

One of ordinary skill in the art would not be motivated to non-rigidly mount a MRI system to the floor from the teaching of Laskaris because one of ordinary skill in the art would understand that a non-rigid MRI mounting of the MRI system of Laskaris would cause errors in the MRI measurements based on the teaching in Laskaris. A prior art reference cannot be used in a § 103(a) rejection where the prior art reference teaches away from the claimed invention. MPEP § 2145 (X)D.

B. The Combination of Laskaris and Kotani Does Not Suggest All Claim Limitations

Kotani is concerned with preventing the vibration from one component of the apparatus 160 from affecting the operation of another component of the same apparatus 160 by the addition of bellows 163-165 and springs 166. However, the part of the apparatus 160 which supports the active device 125 is still rigidly mounted to the floor by a supporting member 162.

Specifically, Kotani teaches to isolate an integrated circuit chip 125 from the vibration of the first refrigeration unit 130. The chip 125 is supported by the upper part of the apparatus 160. The upper part of the apparatus 160 (i.e., wall parts 143, 146 and 151) is supported by supporting member 162, as shown in Figures 8 and 9. The supporting member 162 is fixed to the floor surface 161, as disclosed in col. 9, line 42 of Kotani. Thus, the integrated circuit chip 125 of Kotani is rigidly fixed to the floor 161 through the upper walls of the apparatus 160 and through the supporting member 162.

In contrast, the vibrating refrigeration unit 130 is supported by the lower part of the apparatus 160. The lower walls of the apparatus 160, such as wall 143, are supported by springs 166. The lower walls of the apparatus 160 which support unit 130 are isolated from the upper walls of the apparatus 160 which support the chip 125 by flexible bellows 163-165, as shown in Figure 8. Thus, the vibrating refrigeration unit 130 is suspended by the flexible bellows 163-165 and springs 166. This flexible suspension of the vibrating refrigeration unit 130 absorbs the vibrations of unit 130 and prevents the vibrations from reaching the chip 125 in the upper part of the apparatus (col. 9, lines 49-55).

Thus, Kotani teaches to rigidly mount the active device part (i.e., the chip 125) of the apparatus 160 to the floor 161, while suspending the vibrating refrigeration unit 130 to prevent the vibrations from unit 130 from reaching the chip 125.

Laskaris teaches a superconducting MRI system which includes the MRI magnet system 10 and a vibrating refrigeration unit (cryocooler coldhead) 44 which is connected to

the MRI magnet system 10. Specifically, the cryocooler coldhead may be connected to the magnet system 10 either rigidly or through flexible bellows (col. 4, lines 1-10 of Laskaris).

Therefore, even if there was motivation to combine Laskaris and Kotani, then the combination would still not teach or suggest all claim limitations for the following reason.

If there was motivation to combine Laskaris and Kotani, then one of ordinary skill in the art would be motivated to suspend the vibrating refrigeration unit (i.e., the cryocooler coldhead) 44 of Laskaris using the springs and bellows of Kotani to reduce the cryocooler coldhead vibration. One of ordinary skill in the art would also be motivated to connect the cryocooler coldhead and the magnet system of Laskaris using a flexible bellows, as taught by Laskaris and Kotani.

However, one of ordinary skill in the art would not be motivated to place vibration isolators, such as springs of Kotani, under the MRI magnet system 10 of Laskaris because Kotani does not teach or suggest this. Kotani teaches to rigidly mound the active device (i.e., the chip 125) to the floor 161 using the supporting member 162. Thus, one of ordinary skill in the art would be motivated to rigidly mound the MRI magnet system 10 of Laskaris to the floor using the support skirt 20 or a support beam 162 as taught by Laskaris and Kotani, respectively.

In summary, both Laskaris and Kotani teach to rigidly mount the active device (MRI magnet system 10 and chip 125, respectively) to the floor. Even if there was motivation to combine Laskaris and Kotani, then one of ordinary skill in the art would still rigidly mount the MRI magnet system 10 of Laskaris to the floor, as taught by Laskaris and Kotani, but would suspend the vibrating cryocooler coldhead of Laskaris using springs and bellows, as taught by Kotani. Thus, there is no motivation to support the MRI magnet system with a vibration isolation system, as recited in claim 1 of the present application.

C. Footprint and Retrofit

Paragraph 7 on Page 3 of the Office Action states that the claimed footprint of the isolation system is a matter of obvious design consideration. Applicants respectfully disagree.

MPEP 2144.04 states that "... matters relating to ornamentation only which have no mechanical function cannot be relied upon to patentably distinguish the claimed invention from the prior art.". However, it further states that obvious design considerations cannot be used as motivation to modify the references where the change in shape "...results in a product which is distinct from the reference product..."

In this case, the claimed footprint is not simply an ornamental feature. It has the mechanical function of supporting the MRI magnet system. The footprint results in a distinct product because the vibration isolation system does not stick out laterally from the MRI magnet system and does not interfere with patient access to the MRI magnet system. Thus, "obvious design consideration" is not a proper motivation to modify the references in the present case.

Paragraph 7 on Page 3 of the Office Action also states that the claimed retrofit would reduce space usage and costs. However, there is no teaching or suggestion in the applied prior art to retrofit an existing MRI magnet system with a vibration isolation system. Thus, the motivation to combine provided in the Office Action is not proper.

D. §103(a) Rejection – Laskaris et al. in view of Ohsaki et al.

Claims 2-4, 12-13, 15-17 and 22 are rejected under §103(a) over Laskaris et al. (US 6,198,371) and Kotani in view of Ohsaki et al. (US 6,202,492).

Ohsaki is directed to a photolithography exposure apparatus. Ohsaki provides no motivation for providing a vibration isolation system for a MRI system, such as the system of Laskaris. Thus, there is no motivation to combine Laskaris and Ohsaki.

Furthermore, claims 2-4, 12-13, 15-17 and 22 are rejected over Laskaris, which teaches an MRI system, in view of Kotani, which teaches a superconductive chip cooling apparatus, and in view of Ohsaki, which teaches an exposure apparatus. Applicants submit that this combination is based on an improper hindsight reconstruction gained solely from the applicants' disclosure. One of ordinary skill in the art would not be motivated to combine these three unrelated references from different fields of endeavor without relying on the knowledge gained from the applicants' disclosure. See MPEP 2145(X)A. Therefore, the rejection is respectfully traversed.

E. §103(a) Rejection – Laskaris et al. in view of Braun et al.

Claims 5-6 and 18 are rejected under §103(a) over Laskaris et al. (US 6,198,371) and Kotani in view of Braun et al. (US 4,781,363).

Braun is directed to a vibration isolation system that is used in engines, compressors, pumps and helicopters (col. 1, lines 14-20). Braun provides no motivation for providing a vibration isolation system for a MRI system, such as the system of Laskaris. Thus, there is no motivation to combine Laskaris and Braun.

Furthermore, claims 5-6 and 18 are rejected over Laskaris, which teaches a MRI system, in view of Kotani, which teaches a superconductive chip cooling apparatus, and in view of Braun, which teaches a vibration isolation system that is used in engines, compressors, pumps and helicopters. Applicants submit that this combination is also based on an improper hindsight reconstruction gained solely from the applicants' disclosure. One of ordinary skill in the art would not be motivated to combine these three unrelated references from different fields of endeavor without relying on the knowledge gained from the applicants' disclosure. See MPEP 2145(X)A. Therefore, the rejection is respectfully traversed.

F. §103(a) Rejection – Laskaris et al. in view of Aoki et al.

Claim 40 is rejected under §103(a) over Laskaris et al. (US 6,198,371) and Kotani in view of Aoki et al. (US 2002/0190827). Aoki does not remedy the deficiencies of the combination of Laskaris and Kotani with respect to claim 1.

II. Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable consideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Date _____

8/10/05

Respectfully submitted,

By _____

Leon Radomsky
Attorney for Applicant
Registration No. 43,445

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 672-5300
Facsimile: (202) 672-5399

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.